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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,381	07/02/2001	Glenda C. Delenstarr	10010760-1	3033

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EXAMINER	
SISSON, BRADLEY L	

ART UNIT	PAPER NUMBER
1634	

DATE MAILED: 11/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/899,381	DELENSTARR ET AL.	
	Examiner	Art Unit	
	Bradley L. Sisson	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13,15,16 and 18-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13,15,16 and 18-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The specification is objected to as documents have been improperly incorporated by reference. In particular, the specification states at paragraph 36, found at page 8: "All patents, patent publications, and publications mentioned herein, whether *supra* or *infra*, are hereby incorporated by reference in their entirety." Such omnibus language fails to specify what specific information applicant seeks to incorporate by reference and similarly fails to teach with detailed particularity just where that specific information is to be found in each of the cited documents. As set forth in *Advanced Display Systems Inc. v. Kent State University* (Fed. Cir. 2000) 54 USPQ2d at 1679:

> Incorporation by reference provides a method for integrating material from various documents into a host document--a patent or printed publication in an anticipation determination--by citing such material in a manner that makes it clear that the material is effectively part of the host document as if it were explicitly contained therein. *See General Elec. Co. v. Brenner*, 407 F.2d 1258, 1261-62, 159 USQP 335, 337 (D.C. Cir. 1968); *In re Lund*, 376 F.2d 982, 989, 153 USPQ 625, 631 (CCPA 1967). **To incorporate material by reference, the host document must identify with detailed particularity what specific material it incorporates and clearly indicate where that material is found in the various documents.** *See In re Seversky*, 474 F.2d 671, 674, 177 USPQ 144, 146 (CCPA 1973) (providing that incorporation by reference requires a statement "clearly identifying the subject matter which is incorporated and where it is to be found"); *In re Saunders*, 444 F.2d 599, 602-02, 170 USPQ 213, 216-17 (CPA 1971) (reasoning that a rejection or anticipation is appropriate only if one reference "expressly incorporates a particular part" of another reference); *National Latex Prods. Co. v. Sun Rubber Co.*, 274 F.2d 224, 230, 123 USPQ 279, 283 (6th Cir. 1959) (requiring a specific reference to material in an earlier application in order to have that material considered a part of a later application); *cf. Lund*, 376 F.2d at 989, 13 USPQ at 631 (holding that **a one sentence reference to an abandoned application is not sufficient to incorporate from the abandoned application into a new application**). (Emphasis added.)

Attention is also directed to MPEP 608.01(p)I, which, in pertinent part, is reproduced below:

> Mere reference to another application, patent, or publication is not an incorporation of anything therein into the application containing such reference for the purpose of the disclosure required by 35 U.S.C. 112, first paragraph. In re de Seversky, 474 F.2d 671, 177 USPQ 144 (CCPA 1973). In addition to other requirements for an application, the referencing application should include an identification of the referenced patent, application, or publication. Particular attention should be directed to specific portions of the referenced document where the subject matter being incorporated may be found. (Emphasis added)

Accordingly, the cited documents are not considered to have been properly incorporated by reference and as such, have not been considered with any effect towards their fulfilling, either in part or in whole, the enablement, written description, or best mode requirements of 35 USC 112, first paragraph.

Response to argument

2. At page 3, bridging to page 4 of the response received 09 August 2004, applicant's representative asserts that the citations provided above are non-analogous to the present case, that the cited documents have been properly incorporated by reference, and that the objection to the specification should be withdrawn

3. The above argument ahs been fully considered but have not been found persuasive for MPEP 608.01(p)I also states that such direction is to be used when applicant seeks to incorporate by reference material found in a publication or other document. Therefore, and in the absence of convincing evidence to the contrary, the objection to the specification is maintained.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 13, 15, 16, and 18-23 remain rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,723,320 (Dehlinger) in view of US Patent 5,445,934 (Fodor et al.), Blanchard et al. (*Biosensors*, Vol. 11, No. 6/7, pages 687-690, 1996), US

Patent 5,563,034 (Brink et al.), and Iitiä et al., BioTechniques, Vol. 17, No. 3, 1994, pages 566-573.

8. Dehlinger, column 13, discloses methods of using arrays of oligonucleotides. Such methods encompass sequencing-by-hybridization, diagnostics, and gene expression. Column 12 specifically teaches that an array may contain internal control sequences. Column 12 describes an assortment of probes that can range in lengths from 10 to 50 bases in length.

9. Dehlinger does not teach use of applicant's "background nucleic acid feature" nor the use of sequences represented by SEQ ID NOS: 1 to 53 (claim 22).

10. Fodor et al., column 15, discloses the synthesis of arrays of oligonucleotides that comprise up to 10^8 different sequences which, at column 25, are further defined as optionally being dodecanucleotides or larger. The examiner takes notice that an array of 10^8 oligonucleotides would accommodate all possible oligonucleotides 13 bases in length (6.71×10^7 oligonucleotides). Accordingly, an oligonucleotides array comprising all possible 13-mers would, by default, comprise those sequences explicitly recited by applicant that are 13 bases or less in length.

11. Blanchard et al., teach explicitly of the production of oligonucleotide arrays that comprise all possible oligonucleotides of a given length.

12. Neither Fodor et al., nor Blanchard et al., teach the use of sequences that will not hybridize to their complement.

13. Brink et al., columns 3, teaches:

> [I]f there is non-specific probe binding, probe trapping, or insufficient washing, he experimental and negative control probes will respond in the same way. Use of a negative control probe allows one to accurately determine how much of the

> experimental signal is due to binding of the experimental probe to the target nucleic acid. Without negative controls it is difficult to determine how much of the signal from a hybridization assay is due to background. This can be crucial because in some environmental samples high signal is due entirely or almost entirely to high background. Thus negative controls can be crucial to interpretation of results from hybridization assays.

14. Brink et al., column 3, also teach:

> Running experimental and control hybridizations under different conditions is usually so inconvenient that it is impractical. Even if the experimental and control probes are optimized for the same conditions, if the probes are dissimilar in length, distribution of GC and AT, or any of the other variables that affect hybridization kinetics, the probes will behave differently in hybridization, diminishing the value of the negative control.

15. Brink et al., teaches that these problems an be overcome by using control probes that "are analogous in almost every respect to the experimental probes, except in their ability to bind the intended nucleic acid target."

16. As seen in column 4, the negative control probes are capable of binding to their complement, but not to the target sequence. Brink et al., do not teach of nucleic acid sequences that either do not bind or bind poorly to their complement.

17. Iitiä et al., page 571, center column, teach that they "repeatedly obtained a lower hybridization signal with the probes designed against the sense strand of the target DNA."

18. It would have been obvious to one of ordinary skill in the art at the time the invention was made to performed nucleic acid hybridization assays that contained an internal control (Fodor et al.) wherein the assay comprised have used as a negative control probe nucleic acid sequences that either do not bind to the target nucleic acid or to the (experimental) probe for a target nucleic acid (Brink et al.) and wherein the assay

further comprised performing washing steps prior to detecting a hybridization signal (Brink et al.). It would have also been obvious to said ordinary artisan to have performed said assay where the assay was conducted in association with nucleic acids immobilized in an array format (claim16; Dehlinger, Fodor et al., and Blanchard et al.). As noted by Brink et al., one should select probes that correspond as closely a possible to that of the target nucleic acid. Accordingly, it would have been obvious to said ordinary artisan to have selected probes such as those taught explicitly by Brink et al., a well as other nucleic acid sequences known in the art that exhibit poor or no binding to their complement (Iitiä et al.).

19. For the above reasons, and in the absence of convincing evidence to the contrary, claims 13, 15, 16, and 18-23 are rejected under 35 USC 103(a) as being unpatentable over US Patent 5,723,320 (Dehlinger) in view of US Patent 5,445,934 (Fodor et al.), Blanchard et al. (*Biosensors*, Vol. 11, No. 6/7, pages 687-690, 1996), US Patent 5,563,034 (Brink et al.), and Iitiä et al., BioTechniques, Vol. 17, No. 3, 1994, pages 566-573.

Response to argument

20. At page 7 of the response applicant's representative asserts that the rejection is improper and should be withdrawn because:

> All of the pending claims require that the background feature include probes that do not hybridize to any target in the sample being assayed.

The above argument ahs been fully considered and has not been found persuasive. For convenience, claim 13, the sole independent claim under consideration, is reproduced below.

13. (Previously Presented) A method of detecting the presence of an analyte nucleic acid in a sample, said method comprising:

(a) providing a nucleic acid array comprising:

(i) at least one hybridization feature to which said analyte nucleic acid specifically binds under stringent hybridization conditions; and

(ii) at least one background feature, **wherein said background feature is a polymeric composition that comprises background probes that do not specifically bind under stringent hybridization conditions to any target nucleic acids of said sample**;

(b) contacting said nucleic acid array with said sample under stringent hybridization conditions;

(c) washing said nucleic acid array;

(d) detecting a hybridization signal from said hybridization feature and background signal from said background feature;

(e) subtracting said background signal from said hybridization signal to obtain a background corrected hybridization signal; and

(f) relating said background corrected hybridization signal to the presence of said analyte target nucleic acid in said sample to detect the presence of said analyte target nucleic acid in said sample;

wherein said method is further characterized by including a target nucleic acid labeling step prior to said detecting step (d).

21. As seen above, the claim does not proscribe the binding of the "background feature [to] not hybridize to any target in the sample being assayed." Rather, it only requires the background feature not to hybridize "under stringent conditions." Accordingly, applicant is arguing limitations not found in the claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

22. For the above reasons, and in the absence of convincing evidence to the contrary, the rejection is maintained.

Conclusion

23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

24. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley L. Sisson whose telephone number is (571) 272-0751. The examiner can normally be reached on 6:30 a.m. to 5 p.m., Monday through Thursday.

26. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones can be reached on (571) 272-0745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

27. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

B. L. Sisson

Bradley L. Sisson
Primary Examiner
Art Unit 1634

BLS
22 November 2004